

Patent claims

1. An optoelectronic component (1) having a semiconductor arrangement (4) which emits and/or receives electromagnetic radiation and which is arranged on a carrier (22) which is thermally conductively connected to a heat sink (12), and having external electrical connections (9) which are connected to the semiconductor arrangement (4),
5 characterized in that
the external electrical connections (9) are arranged in electrically insulated fashion on the heat sink (12) at a distance from the carrier
10 (22).
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2. The optoelectronic component as claimed in claim 1,
characterized in that
20 the carrier contains a carrier substrate (2) and at least one electrically insulating layer (14) arranged thereon.
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3. The optoelectronic component as claimed in claim 1 or 2,
characterized in that
the semiconductor arrangement (4) and the electrically insulating layer (14) have an electrically conductive layer (13) arranged
30 between them which is connected to one of the external electrical connections (9).
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4. The optoelectronic component as claimed in one of claims 1 to 3,
characterized in that
the semiconductor arrangement contains a semiconductor chip.

5. The optoelectronic component as claimed in one of
claims 1 to 4,
characterized in that
the external electrical connections (9) include
5 conductor tracks on a printed circuit board.

6. The optoelectronic component as claimed in one of
claims 1 to 5,
characterized in that
10 conductor tracks on different printed circuit
boards arranged above one another can be connected
to one another by means of plated-through holes.

7. The optoelectronic component as claimed in one of
15 claims 2 to 6,
characterized in that
the carrier substrate (2) has at least one
material with good thermal conductivity from the
group comprising Si, diamond-coated Si, diamond,
20 SiC, AlN and BN.

8. The optoelectronic component as claimed in one of
claims 2 to 7,
characterized in that
25 the electrically insulating layer (14) comprises
SiO₂.

9. The optoelectronic component as claimed in one of
claims 1 to 8,
30 characterized in that
the semiconductor arrangement (4) is attached to
the carrier (22) by means of a metal solder or a
thermally and/or electrically conductive adhesive.

- 35 10. The optoelectronic component as claimed in one of
claims 1 to 9,
characterized in that

the carrier (22) is attached to the heat sink (12) by means of a metal solder or a thermally conductive adhesive.

- 5 11. The optoelectronic component as claimed in one of
claims 1 to 10,
characterized in that
the semiconductor arrangement (4) and the carrier
(22) are arranged in the cavity (3) of a basic
10 housing (20).
12. The optoelectronic component as claimed in claim
11,
characterized in that
15 the cavity (3) of the basic housing (20) contains
precisely one semiconductor arrangement (4).
13. The optoelectronic component as claimed in claim
11 or 12,
20 characterized in that
the basic housing (20) is formed at an angle on
the inner side (17) which faces the semiconductor
arrangement (4), so that the basic housing (20)
has a reflective area for a portion of the
25 radiation emitted by the semiconductor arrangement
(4).
14. The optoelectronic component as claimed in one of
claims 11 to 13,
30 characterized in that
the cavity (3) between the semiconductor
arrangement (4) and lateral walls (17) of the
cavity contains a reflective filling compound (6)
which, as seen from the semiconductor arrangement
35 (4) toward the front (21) of the basic housing
(20), has a concave surface (30) which forms a
reflective area for a portion of the radiation.

15. The optoelectronic component as claimed in one of
claims 1 to 14,
characterized in that
the filling compound contains TiO_2 or an epoxy
5 resin filled with TiO_2 particles.

16. The optoelectronic component as claimed in one of
claims 1 to 15,
characterized in that
10 the semiconductor arrangement (4) is at least
partly encapsulated by a radiation-pervious
encapsulation compound (6).

17. The optoelectronic component as claimed in one of
15 claims 11 to 16,
characterized in that
at least some of the external connections (9) are
arranged between the basic housing (20) and the
heat sink (12).
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18. The optoelectronic component as claimed in one of
claims 11 to 17,
characterized in that
it is provided for an electrical power consumption
25 of at least 0.5 W.

19. The optoelectronic component as claimed in one of
claims 11 to 18,
characterized in that
30 it is provided for an electrical power consumption
of at least 1 W.

20. The optoelectronic component as claimed in one of
claims 11 to 19,
35 characterized in that
it is provided for an electrical power consumption
of at least 3 W.

21. The optoelectronic component as claimed in one of claims 11 to 20, characterized in that it has a base area of no more than 1 cm².
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22. A component-based module, characterized in that it has a plurality of optoelectronic components (1) as claimed in one of claims 1 to 21.
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23. A component-based module having a plurality of optoelectronic components as claimed in one of claims 1 to 21, characterized in that at least some of the optoelectronic components are electrically conductively connected to one another by conductor tracks.
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24. The component-based module as claimed in claim 22 or 23, characterized in that the individual optoelectronic components (1) are arranged in the form of a matrix and at least some of them are connected in series.
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25. The component-based module as claimed in one of claims 22 to 24, characterized in that a plurality of optoelectronic components (1) each have a basic housing (20).
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